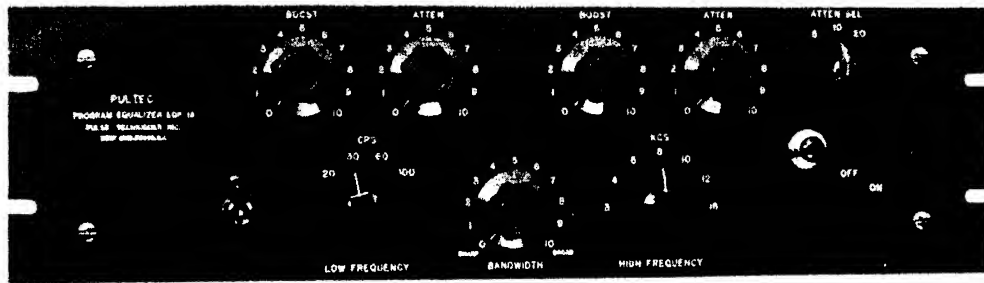


# PROGRAM EQUALIZER

**PULTEC®**

**MODEL**

**EQP-1A**



**USED** BY RADIO STATIONS, RECORD COMPANIES  
AND RECORDING STUDIOS . . .

**TO** ADD THAT "FINAL TOUCH" TO THE BALANCE  
OF GOOD PROGRAM MATERIAL, AND TO GREATLY

**IMPROVE** THE QUALITY OF PROGRAM MATERIAL PRE-  
VIOUSLY RECORDED ON EQUIPMENT OF  
INFERIOR QUALITY OR DIFFERING CHAR-  
ACTERISTICS.

The wide range of equalization curves pro-  
vided makes it possible to boost the very low or  
very high frequency notes of the orchestra without  
"muddying up" the middle register instruments.  
Continuously variable controls permit changing  
the amount of equalization on sustained tones  
without steps in level, or noise. All controls are  
clickless and a key permits cutting the equalizer  
in and out on cue.

**NO LOSS:** Passive equalizer  
plus push-pull amplifier.

## VERSATILE:

4 low } **Boost** frequencies.  
7 high }

4 low } **Attenuate** frequencies.  
3 high }

## SHAPE CONTROL:

High boost curves variable sharp to  
broad.

**IN-OUT KEY:** Switches equalization in and  
out without clicks or changes in level.

## Specifications

**20, 30, 60, 100 cps shelf boost,** 0 to 13.5 db.

**20, 30, 60, 100 cps shelf attenuate,** 0 to 17.5 db.

**3, 4, 5, 8, 10, 12, 16 kcs peak boost,** 0 to 18 db.

**5, 10, 20 kcs shelf attenuate,** 0 to 16 db.

**INPUT TRANSFORMER:** 600, 250 and 150 ohms.

### OUTPUT TRANSFORMER:

For use into loads of 600, 250 and 150 ohms.

**NOISE:** 92 db below + 10 dbm.

**DISTORTION:** 0.15% at + 10 dbm into 600 ohms.

**LOSS:** None. Insertion loss restored by amplifier.

**AMPLIFIER:** Flat, 20 cps to 20 kcs; +0, -1 db.

**TUBES:** 1 each ECC-82/12AU7, ECC-83/12AX7, 6X4  
included.

**POWER REQUIRED:** 117 volts, 50/60 cps, 25 watts.

**PANEL SIZE:** 5¼" x 19". Depth behind panel 7¾".

**PANEL FINISH:** Pultec blue-gray baked enamel.  
Engraved.

**MOUNTING:** Standard EIA rack mount.

**NET WEIGHT:** 15 pounds.

*Licensed under patents of the Western Electric Company*

**PULSE TECHNIQUES, INC.**

1411 PALISADE AVE., WEST ENGLEWOOD, NEW JERSEY

201 TEANECK 7-2575

**PULTEC®**

# PROGRAM EQUALIZER

**Solid State**

**MODEL**

**EQP-1A3**



**USED**

BY RADIO STATIONS, RECORD COMPANIES  
AND RECORDING STUDIOS . . .

**TO**

ADD THAT "FINAL TOUCH" TO THE BALANCE  
OF GOOD PROGRAM MATERIAL, AND TO  
GREATLY

**IMPROVE**

THE QUALITY OF PROGRAM MATERIAL PRE-  
VIOUSLY RECORDED ON EQUIPMENT OF  
INFERIOR QUALITY OR DIFFERING CHAR-  
ACTERISTICS.

The wide range of equalization curves provided makes it possible to boost the very low or very high frequency notes of the orchestra without "muddying up" the middle register instruments. Continuously variable controls permit changing the amount of equalization on sustained tones without steps in level, or clicks. A key permits cutting the equalizer in and out on cue.

**NO LOSS:** Passive equalizer  
plus operational amplifier

**VERSATILE:**

4 low                      **Boost** frequencies  
7 high

4 low                      **Attenuate** frequencies  
3 high

**SHAPE CONTROL:**

High boost curves variable sharp to  
broad.

**IN-OUT KEY:** Switches equalization in and  
out without clicks.

## Specifications

**PEAK BOOST:** 3, 4, 5, 8, 10, 12, 16 kHz; 0 to 18 dB.

**SHELF ATTENUATE:** 5, 10, 20 kHz; 0 to 16 dB.

**SHELF BOOST:** 20, 30, 60, 100 Hz; 0 to 13.5 dB.

**SHELF ATTENUATE:** 20, 30, 60, 100 Hz; 0 to 17.5 dB.

**NOISE:** Below -80 dBm.

**DISTORTION:** 0.15% at +10 dBm into 600 ohms.

**PANEL SIZE:** 3½ x 19 in. Depth behind panel is 7½ in.

**PANEL FINISH:** Brushed aluminum satintone.

**MOUNTING:** Standard EIA rack mount.

**POWER REQUIRED:** 117 volts, 50/60 Hz, 5 watts.  
234 volts, 50/60 Hz available on order.

**LOSS:** None. Equalizer loss restored by operational amplifier. Over-all result is no loss and no gain.

**INPUT LEVEL:** -20 dBm provides greater than 60 dB signal to noise ratio. +4 dBm allows generously for signal peaks without clipping.

**OUTPUT LEVEL:** +21 dBm maximum.

**INPUT TRANSFORMER:** 600 ohms, matching. Connections can be changed for 250 or 150 ohms.

**OUTPUT TRANSFORMER:** Feeds a 600 ohm load. Connections can be changed for 250 or 150 ohms.

**AMPLIFIER RESPONSE:** Including input and output transformers, 20 Hz to 20 kHz; +0, -1 dB from 1000 Hz reference. Transformers have 70 dB magnetic shielding.

**NET WEIGHT:** 9 pounds.

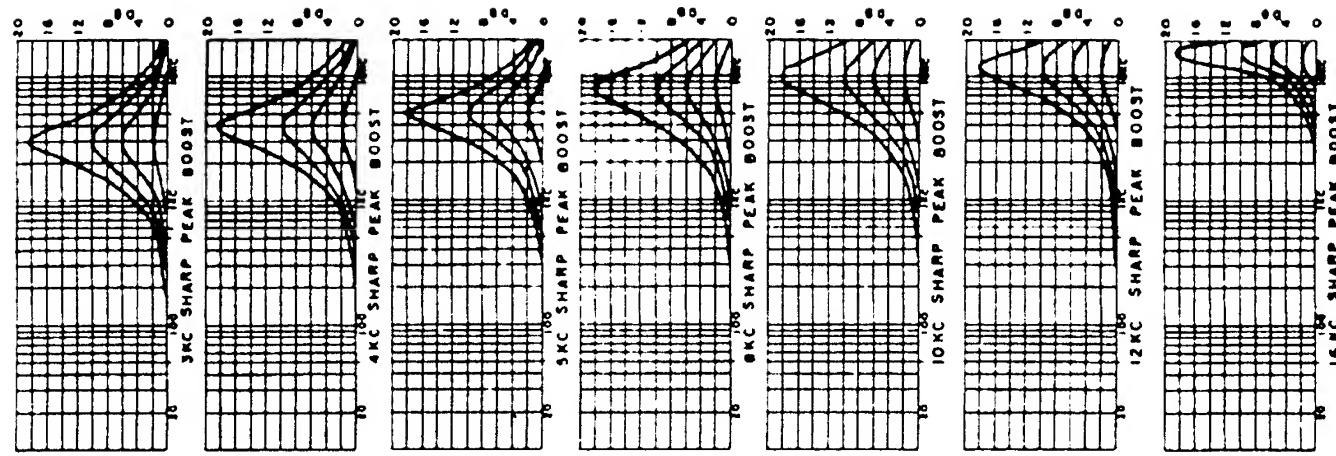
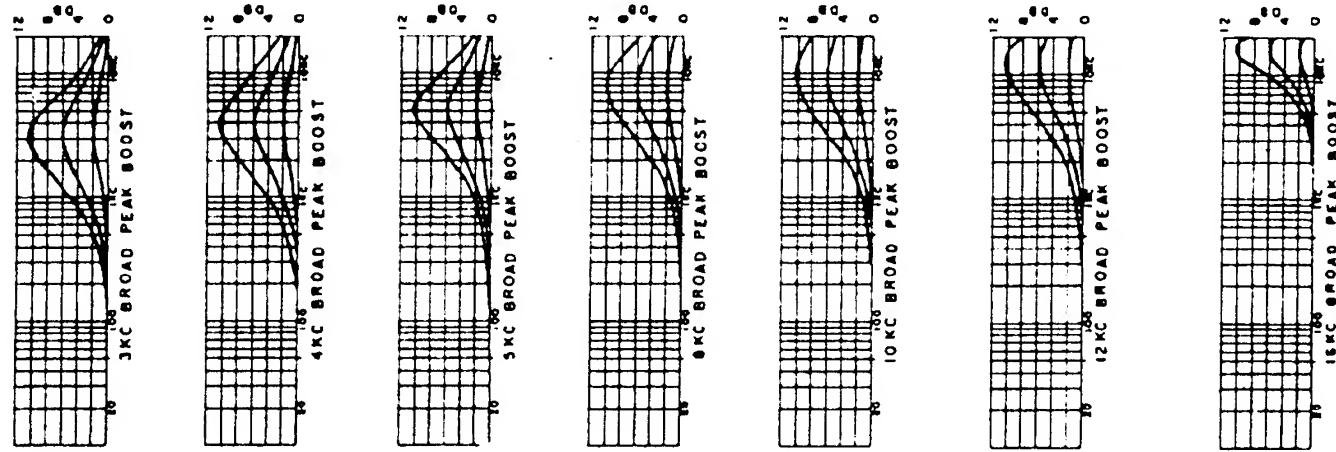
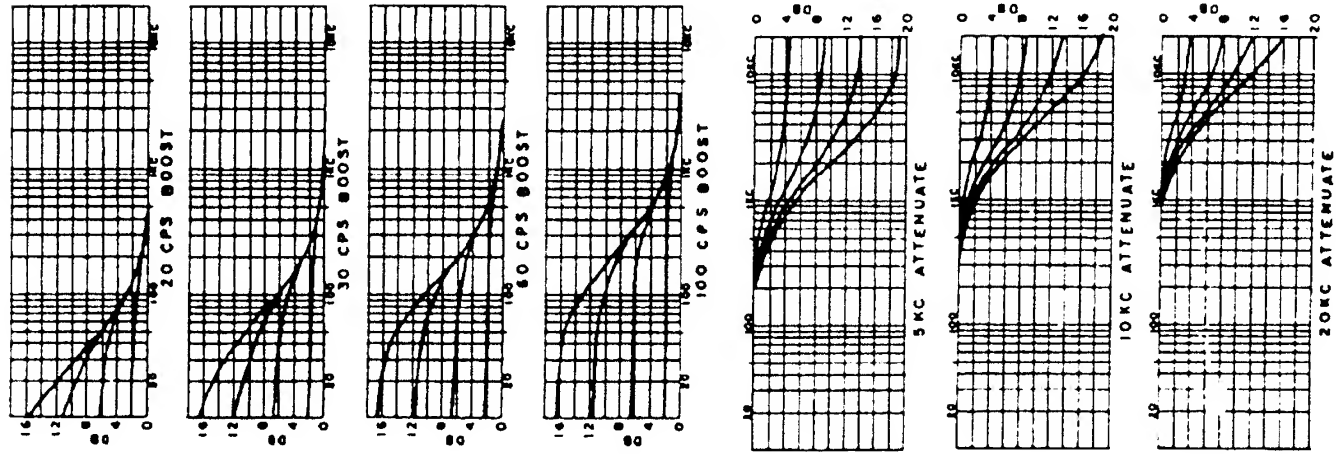
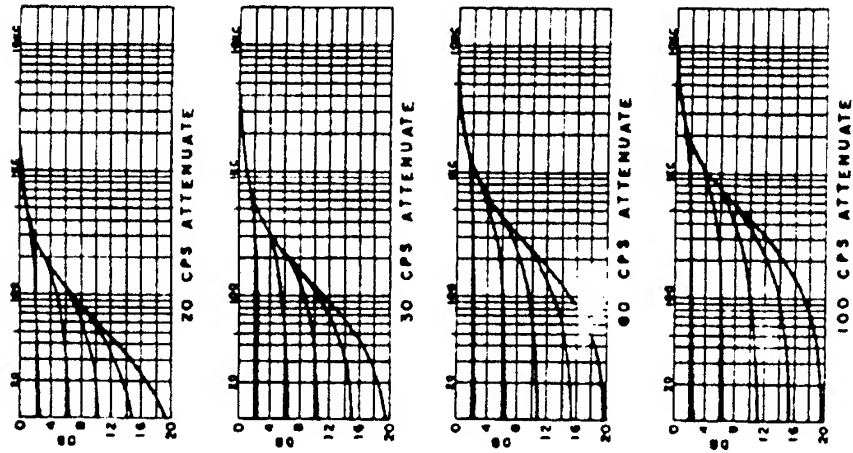
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**PULSE TECHNIQUES, INC.**

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CABLE ADDRESS: PULTEC, TEANECK, NEW JERSEY

TELEPHONE  
(201) 837-2575



The boost, attenuate and bandwidth controls are continuously variable. Therefore, the curves in the above families represent typical settings, not steps.

PULTEC

MODEL EQP-1A

PROGRAM EQUALIZER

# INSTALLATION AND OPERATING INSTRUCTIONS

## PULTEC MODEL EQP-1A PROGRAM EQUALIZER

### GENERAL

The PULTEC Model EQP-1A Program Equalizer consists of a passive equalizer, an amplifier and self contained power supply. The amplifier restores the insertion loss of the equalizing network, thus providing a no loss, no gain unit.

### INSTALLATION

INPUT IMPEDANCE: 600 ohms, matching, transformer input.  
Can be strapped for 250 or 150 ohms.

OUTPUT IMPEDANCE: Transformer, feeds a 600 ohm load.  
Can be strapped to feed loads of  
300 or 150 ohms.

When installing in an unbalanced circuit,  
strap one input terminal and one output  
terminal to the chassis ground terminal.

AVERAGE INPUT LEVEL: Optimum range -15 dbm to +8 dbm.

MAXIMUM PEAK OUTPUT LEVEL: +21 dbm.

POWER SUPPLY: 117 volts, 50/60 cps, 25 watts.

### OPERATION

The "LOW FREQUENCY" selector switch determines the curve on which the left hand "BOOST" and "ATTEN" controls are effective. EITHER the boost control OR the attenuate control should be operated as required. Do not attempt to boost and attenuate simultaneously on the low frequencies.

The "HIGH FREQUENCY" selector switch determines the curve on which the left hand "BOOST" control is effective. The "ATTEN SEL" switch selects the curve on which the right hand "ATTEN" control operates. Consequently, it is possible, and sometimes very desirable, to operate the right hand boost and attenuate controls simultaneously. For example, it may be desired to roll off on the 20 kcs attenuate curve and also to brighten the signal somewhat at a lower frequency by using the boost control.

The "BANDWIDTH" control adjusts the width of the high frequency boost curves. This bandwidth control is continuously variable from sharp to broad.

Operating the key switch away from the "IN" position is equivalent to returning ALL boost and attenuate controls to their zero positions. The amplifier remains in the circuit.

## TUBES & POTENTIOMETERS IN PULTEC EQUALIZERS

The Types ECC-82 and ECC-83 tubes are equivalent to the 12AU7 and 12AX7 respectively. The manufacturers of these tubes claim, and our experience confirms, that the ECC series average substantially lower hum and microphonics than the 12AU7 and 12AX7.

MODEL EQP-1A  
MODEL EQP-1A3

The Low Boost control is Allen-Bradley Type JA-1031. This is a 10,000 ohm potentiometer with "Audio" or Logarithmic taper.

The Low Attenuate control is Allen-Bradley Type JA-1041 or Ohmite Type CA-1041. This is a 100,000 ohm potentiometer with "Audio" or Logarithmic taper.

The High Boost control is Allen-Bradley Type JU-1031 or Ohmite Type CU-1031. This is a 10,000 ohm potentiometer with "Linear" taper.

The High Attenuate control is Allen-Bradley Type JU-1021 or Ohmite Type CU-1021. This is a 1000 ohm potentiometer with "Linear" taper.

The Bandwidth control is Allen-Bradley Type JU-2521 or Ohmite Type CU-2521. This is a 2500 ohm potentiometer with "Linear" taper.

MODEL EQH-2

The Low Boost control is Allen-Bradley Type JA-5031. This is a 50,000 ohm potentiometer with "Audio" or Logarithmic taper.

The Low Attenuate control is Allen-Bradley Type JA-2541 or Ohmite Type CA-2541. This is a 250,000 ohm potentiometer with "Audio" or Logarithmic taper.

The High Boost control is Allen-Bradley Type JU-5031 or Ohmite Type CU-5031. This is a 50,000 ohm potentiometer with "Linear" taper.

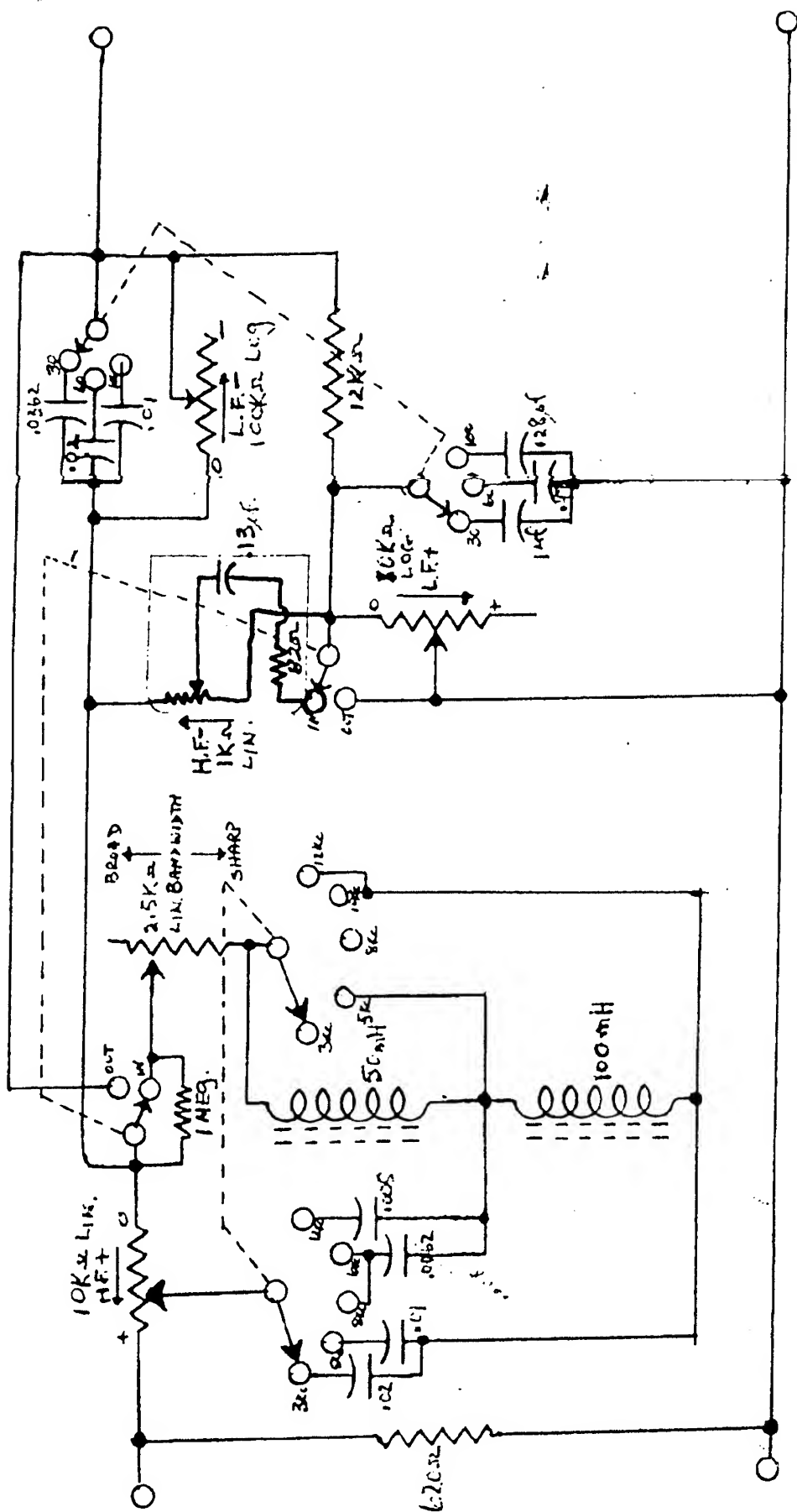
The High Attenuate control is Allen-Bradley Type JU-5021 or Ohmite Type CU-5021. This is a 5000 ohm potentiometer with "Linear" taper.

MODEL NEQ-5

The Low Peak control is Allen-Bradley Type JU-2521 or Ohmite Type CU-2521. This is a 2500 ohm potentiometer with "Linear" taper.

The High Peak control is Allen-Bradley Type JU-1031 or Ohmite Type CU-1031. This is a 10,000 ohm potentiometer with "Linear" taper.

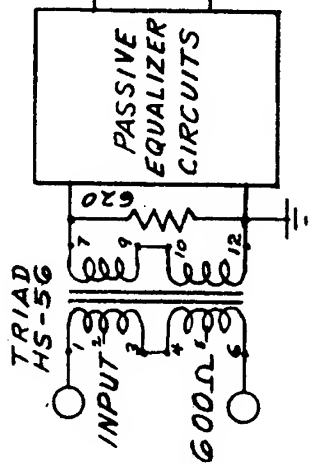
The Dip control is Allen-Bradley Type CB-2521. This is a 2500 ohm potentiometer with counter clockwise Logarithmic taper.



PULTEC EQP-1R  
EQUALIZER

TRIAD HS-56

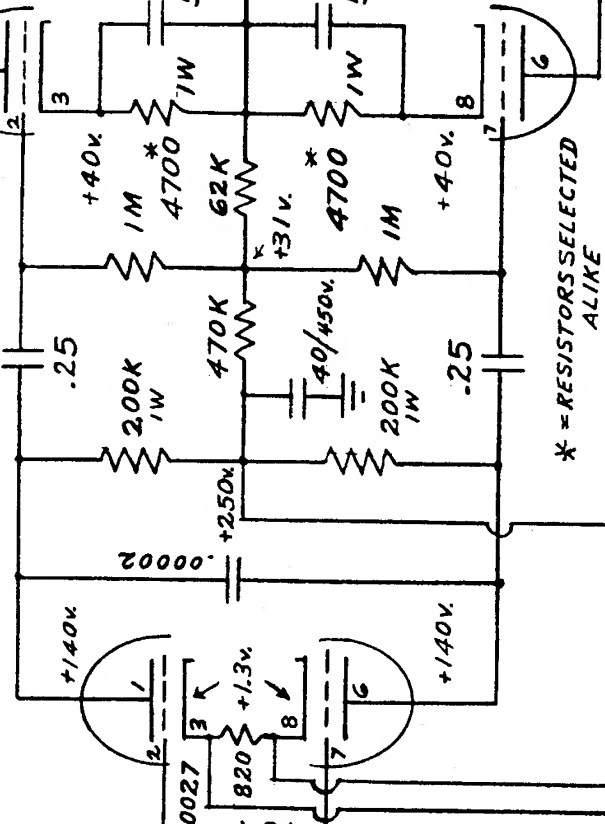
INPUT IMPEDANCE	CONN. TO STRAP
600Ω	1-6
250Ω	2-5
150Ω	1-6
60Ω	2-5



OVERALL GAIN WITH INPUT & OUTPUT TRANSFORMERS CONNECTED FOR SAME IMPEDANCE IS 0 DB.

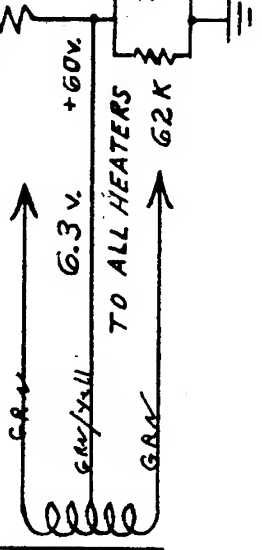
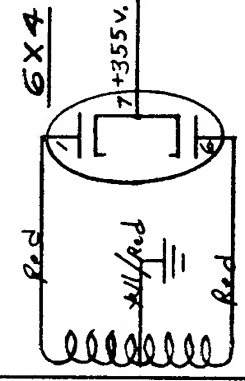
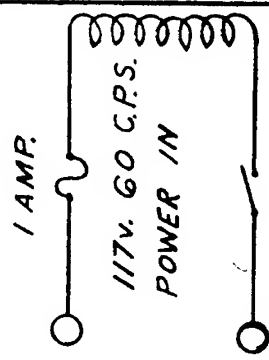
ECC-83/12AX7

ECC 82/12AU7



\* = RESISTORS SELECTED ALIKE

CHICAGO PCC-55



NOTE: VOLTAGES SHOWN ARE TYPICAL AVERAGE VALUES READ ON AN 11 MEGOHM VOLTMETER. NO INPUT SIGNAL.

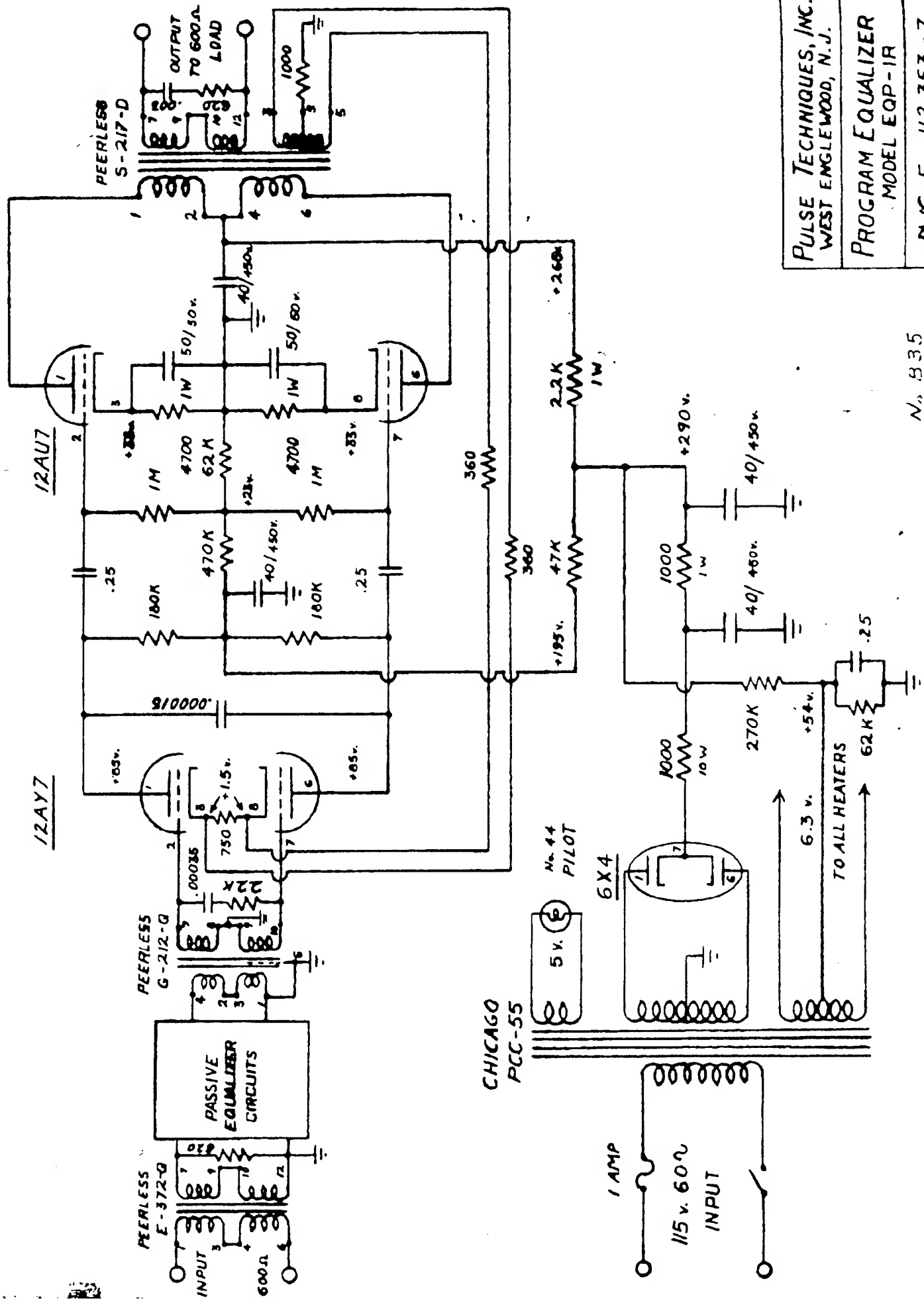
TO FEED LOAD OF	STRAP
600Ω	9-10
300Ω	8-11
150Ω	7-10, 9-12
75Ω	7-11, 8-12
ALWAYS CONNECT TO 7&12	

SERIAL No.

PULSE TECHNIQUES, INC.  
WEST ENGLEWOOD, N. J.

MODEL EQP-1A  
PROGRAM EQUALIZER

DWG. E-72,658-2



N. 335